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Application No.: 10/065,762

Docket No.: JCLA8424-R

AMENDMENT

Please amend the application as indicated hereafter.

In The Claims:

Claim 1. (currently amended) A buffer device, for transmitting a plurality of messages between a source controller and a destination controller, comprising:

a plurality of message rows, for storing the messages that the source controller intends to transmit to the destination controller, each of the message rows at least comprising a write complete flag and a distribution complete flag;

a write control unit, coupled to the source controller and the plurality of message rows, used to sequentially output a plurality of free message row addresses according to the plurality of distribution complete flags, wherein when the buffer device still has a free message row, the source controller reads an address of ~~[[the]]~~ a target message row that is currently free among said plurality of message rows, and the distribution complete flag of the target message row ~~that is currently free~~ is set~~[[,]]~~; and when the source controller completes writing ~~[[the]]~~ a message of the target message row ~~that is currently free~~, the write complete flag of the target message row ~~that is currently free~~ is set, and a read request for informing the destination controller to read the message of the target message row is issued; and when the buffer device has no free message row, said write control unit outputs a non-free message row signal; and

a read control unit, coupled to the destination controller and the plurality of message rows, to ~~sequentially~~ issue ~~[[a]]~~ the read request to inform the destination controller to read the message

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of the target message row when the write complete flag of the target message row is set, wherein ~~after the destination controller reads the message once the destination controller completes reading~~ the message of the target message row in response to the read request, the distribution complete flag and the write complete flag of the message target row are both cleared without permission of the write control unit and the source controller.

Claim 2. (currently amended) The buffer device of claim 1, wherein the write control unit comprises:

a write pointer control unit, for storing a write address of the target message row ~~that is currently free~~, wherein after the source controller reads the write address of the target message row ~~that is currently free~~, said write pointer control unit sets the distribution complete flag of the message target row ~~that is currently free~~ and progresses the write address of the message row ~~that is currently free~~, and when the source controller completes writing the message of the message target row, the write pointer control unit sets the write complete flag of the target message row;

a distribution complete flag multiplexer, coupled to the write pointer control unit and the distribution complete flags of the plurality of message rows, to output a not-distributed signal according to the distribution complete flag of the message row pointed to by the write address; and

a distribution address multiplexer, coupled to the distribution complete flag multiplexer and the write pointer control unit, to alternatively output ~~the affirmative one~~ of the write address and the no free message row signal according to the not-distributed signal.

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Claim 3. (currently amended) The buffer device of claim 1, wherein the read control unit comprises:

a read pointer control unit, to store a read address of the buffer device, wherein when the destination controller completes reading the message of the message row pointed to by the read address, said read pointer control unit clears the distribution complete flag and the write complete flag of the message row pointed to by the read address, and progresses the read address;

a read buffer, coupled to the read pointer control unit and the plurality of message rows, to temporarily store the message of the message row pointed to by the read address; and

a read request multiplexer, coupled to the read pointer control unit and the write complete flags of the plurality of message rows, to output the read request according to the write complete flag of the message row pointed to by the read address.

Claim 4. (currently amended) The buffer device of claim 1, wherein each message row further comprises:

a command row, to store [[the]] a command that the source controller intends to transmit to the destination controller; and

a data row, to store [[the]] data that the source controller intends to transmit to the destination controller.

Claim 5. (previously presented) The buffer device of claim 4, wherein the size of the command row is four bytes.

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Claim 6. (previously presented) The buffer device of claim 4, wherein the size of the data row is a multiple of four bytes.

Claim 7. (previously presented) The buffer device of claim 1, wherein the source controller is a central processing unit.

Claim 8. (previously presented) The buffer device of claim 1, wherein the destination controller is a central processing unit.

Claim 9. (currently amended) A method for transmitting a message of a source controller to a destination controller, through a message transmitting queue having a plurality of message rows, a write pointer and a read pointer, wherein each of the plurality of message rows at least comprises a write complete flag and a distribution complete flag; said method comprises the steps of:

setting the write pointer and the read pointer to point to ~~the first~~ a target message row among said message rows;

~~the source controller reads the message reading an address of the target message row pointed to by the write pointer by using the source controller,~~ setting the distribution complete flag of the target message row ~~pointed to by the write pointer,~~ and progressing the write pointer after the source controller reads the message address of the target message row ~~pointed to by the write pointer;~~

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~~the source controller writes the~~ writing a message of the target message row by using the source controller, and setting the write complete flag of the target message row [[after]] once the source controller ~~writes~~ completes writing the message of the target message row;

once the write complete flag of the target message row ~~pointed to by the read pointer~~ is set, issuing a read request ~~after the write complete flag of the message row pointed to by the read pointer is set~~ to inform the destination controller to read the message of the target message row; [[and]]

once the destination controller completes reading [[reads]] the message of the target message row in response to the read request ~~pointed to by the read pointer~~, clearing the distribution complete flag and the write complete flag of the target message row ~~pointed to by the read pointer~~ without permission of the source controller; [[.]] and

progressing the read pointer after the destination controller reads the message of the target message row ~~pointed to by the read pointer~~.

Claim 10. (Original) The method of claim 9, wherein when the write pointer is progressed and points to a message row whose distribution complete flag is set, a no free message row signal is asserted to inform the source controller.

Claim 11. (Original) The method of claim 9, wherein the source controller is a central processing unit.

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Claim 12. (Original) The method of claim 9, wherein the destination controller is a central processing unit.

Claim 13. (Original) The method of claim 12, wherein the read request is an interrupt request of the central processing unit.

Claims 14-20 (canceled)